This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

HQ
728
.M39

B 900,845

PROPERTY OF
University of
Michigan
Libraries
1817
RTES SCIENTIA VERITAS

Gaylord
PAMPHLET BINDER
Syracuse, N. Y.
Stockton, Calif.

HQ
728
.M39

UNIVERSITY OF PENNSYLVANIA

OCCUPATIONAL PROPINQUITY AS A FACTOR IN MARRIAGE SELECTION

BY

DONALD M. MARVIN

A THESIS

PRESENTED TO THE FACULTY OF THE GRADUATE SCHOOL IN
PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR
THE DEGREE OF DOCTOR OF PHILOSOPHY

1918

UNIVERSITY OF PENNSYLVANIA

OCCUPATIONAL PROPINQUITY AS A FACTOR IN MARRIAGE SELECTION

BY
DONALD M. MARVIN

A THESIS
PRESENTED TO THE FACULTY OF THE GRADUATE SCHOOL IN
PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR
THE DEGREE OF DOCTOR OF PHILOSOPHY

1918

OCCUPATIONAL PROPINQUITY AS A FACTOR IN MARRIAGE SELECTION.

By Donald M. Marvin.

The presence of a large and increasing number of women in industry raises the question of the possible influence of industry upon marriage selection. Modern social conventions are based upon the presumption that woman is shut away in the home and that man must follow her there if he wishes to see her. In entering industry in such large numbers, women face two new conditions, one negative, the other positive. They leave the home temporarily empty and they create a new social phenomenon of occupational propinquity. This, modified by the various influences of class stratification, financial status, and other forms of group cohesion involved in the present organization of society, tends to differentiate certain groups of men and women for marriage.

Industrial propinquity extends to the home and to the economic status. Even class and race lines enforce occupational cohesion. Such stratification and drawing together of certain parts of social groups must react variously upon those involved. It seems possible that friends who marry within their own occupation are not so much guided by similar tastes and backgrounds as they are driven by a new force of industrial propinquity, a force that has developed with the appearance of woman in industry.

Marriage, a matter of individual choice, if choice exists, obeys the sweeping silent force of propinquity. Women in each occupation are surrounded by the men of the same occupation. Of course they marry these men. This inevitable sequence causes no astonishment.

Today the most attractive as well as the strongest and most vigorous women are in industry. Their presence has been accepted and the taboo has been removed. The result is that men are now marrying the women whom they meet in their work. The tremendous proportions of this movement are of startling and far-reaching significance.

344159

Re-classed

Today we are confronted with tremendous numbers of women in industry and this environment must react upon all phases of their lives. Not the least important aspect of this general situation is the fact that the occupation seems to select certain groups of people for acquaintance and for eventual marriage through propinquity within the shop or factory.

To the extent that women are a factor in modern industry, industry may affect their lives. Industrial propinquity must be a factor in marriage selection in proportion to the number of women employed in industry. The report of the United States Census on Occupations for 1910 shows that there are four times as many women in industry as there were in 1880. With the tremendous acceleration of this movement due to the war, it is quite possible that the number will have doubled between 1910 and 1920. There are over 200,000 women employed in the industries of Philadelphia alone. Twenty-three and four tenths per cent. of the women of the country are engaged in gainful occupations and are therefore exposed to whatever influence occupation may have upon marriage. Of the unmarried women of marriageable age in an industrial city like Philadelphia, a far larger proportion are gainfully employed. In fact, 50 per cent. of the marrying women of Philadelphia are employed at the time of marriage.

number
women
industry

The constant mingling of men and women within an occupation causes such constant sex stimulation as to exert a determining influence upon marriage selection. The effect of a particular occupation upon a woman and upon her chance of marriage is more directly the problem of this thesis. The professional woman may serve as an example. When a woman physician marries a man physician, as seven out of ten such Bryn Mawr alumnae actually did, a new type of home environment is the result. The ethics and ideals of the profession become table talk and professional ambitions and desires are not hedged about by office hours. Such an atmosphere inevitably affects the children. If this were a matter of isolated cases, it might be dismissed as of no importance, but already it concerns half the women being married today.

The problem, then, is the extent and constancy with which industry affects marriage. The first measure of this influence will be the extent of intermarriage within the occupation. It is necessary therefore to discover the actual number of marriages that are occurring between the men and women engaged in the same occupations. A method must then be found to determine the number of marriages that would take place within the occupation were marriage merely a matter of chance. Finally, the number of marriages within the occupation must be compared with the results calculated as a matter of chance in order to show whether or not industry has been an appreciable factor.

It was decided that the only acceptable data would concern the occupation of the man and woman at the time of marriage.

An investigation of applications for marriage licenses in the various cities of the country showed a great mass of material that has never been digested. As Philadelphia is a typical city with a mixed industrial population and as the most complete information has been collected here, the investigation was limited to this city.

The data were derived from the books of the Marriage License Bureau in City Hall in Philadelphia. All licenses in the available books were used. They include practically all licenses issued in Philadelphia for the three years from June, 1913 to June, 1916. The numbers run from 299,758 to 332,586 and from 332,601 to 340,900 and from 341,401 to 355,367. The only exceptions made were those of Negroes, none of whom were counted. Throughout the work here and there a license was skipped because it related to a colored couple. This omission was made with the purpose of refining the statistics.

The grouping of occupations of the United States Census was used in a preliminary study of a thousand cases. Of these thousand cases 541 women worked and of these 275, more than half, married men in the same occupation. Of the thousand men more than 25 per cent. married into their own occupation.

In order to treat the matter at all, it was necessary to group the occupations. The groups selected were very carefully defined and the name of the group shows the type of person employed.

UNIVERSITY OF PENNSYLVANIA

OCCUPATIONAL PROPINQUITY AS A FACTOR IN MARRIAGE SELECTION

BY

DONALD M. MARVIN

A THESIS

PRESENTED TO THE FACULTY OF THE GRADUATE SCHOOL IN
PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR
THE DEGREE OF DOCTOR OF PHILOSOPHY

1918

UNIVERSITY OF PENNSYLVANIA

OCCUPATIONAL PROPINQUITY AS A FACTOR IN MARRIAGE SELECTION

BY
DONALD M. MARVIN

A THESIS
PRESENTED TO THE FACULTY OF THE GRADUATE SCHOOL IN
PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR
THE DEGREE OF DOCTOR OF PHILOSOPHY

1918

TABLE II. AMERICAN GROUP.

WOMEN MEN	None	Unknown	Agriculture	Provisions	Clothing	Textiles	General Factory	Artisans	Drivers	Railroad and Street R.R.	Telephone and Telegraph	Finance	Retail Trade	Clerks	Clerical	Public Service	Professions	Semi-Professions	Personal Service	Domestic Service	Managers and Supts.	Unskilled Labor	Firemen and Engineers	Printing	Miscellaneous	Total
None	40	3	148	49	31	38	405	556	207	142	25	133	729	583	194	123	417	92	31	60	276	115	136	72	73	4678
Unknown	....	—	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0
Agriculture	....	....	—	....	....	....	....	....	....	....	....	....	1	1	....	....	....	....	....	....	....	....	1	....	....	3
Provisions	....	....	....	5	....	3	9	6	5	3	....	....	5	5	1	4	....	1	....	1	1	2	2	....	1	54
Clothing	2	....	13	9	16	6	113	176	38	27	7	4	95	114	35	25	22	16	5	6	22	15	22	23	16	807
Textiles	....	....	1	3	1	27	52	66	21	8	2	6	5	23	6	10	3	2	1	4	5	8	2	5	8	269
General Factory	1	1	7	6	8	10	125	140	59	16	4	2	47	50	16	22	6	6	....	8	2	19	16	24	12	607
Artisans	....	....	....	1	....	....	4	3	1	1	1	....	2	....	....	1	....	....	....	1	....	....	....	....	....	15
Drivers	....	....	....	....	....	....	....	....	—	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0
Railroad and Street Railway	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1
Telephone and Telegraph	....	....	3	....	3	1	10	23	11	7	5	....	24	30	12	7	5	1	....	1	4	2	7	7	....	163
Finance	....	....	....	....	....	....	....	....	....	....	....	—	....	....	....	....	....	....	....	....	....	....	....	....	....	0
Retail Trade	....	....	12	5	5	1	36	65	16	20	3	6	66	64	17	14	12	12	1	7	7	5	6	8	6	388
Clerks	....	....	11	4	1	3	37	88	19	12	3	7	109	143	39	18	29	12	1	5	35	3	11	9	8	607
Clerical	1	....	10	12	6	3	61	124	29	32	10	13	195	173	72	11	72	33	3	10	61	2	18	15	7	973
Public Service	....	....	....	....	....	....	....	....	1	....	....	....	....	1	....	—	....	....	....	....	....	....	....	....	....	2
Professions	....	....	18	2	2	3	27	38	4	10	3	12	71	52	25	12	114	27	4	2	22	2	22	2	5	479
Semi-Professions	1	....	10	....	1	1	17	23	6	8	1	2	21	21	10	5	34	19	1	4	16	1	6	5	7	220
Personal Service	....	....	....	1	....	....	2	5	....	....	1	....	6	4	....	2	6	3	1	....	3	....	....	....	....	34
Domestic Service	1	....	8	9	4	2	26	48	43	11	2	....	24	18	2	11	1	5	2	32	5	28	14	1	5	302
Managers and Superintendents	....	....	....	....	....	....	1	1	....	....	....	....	1	1	2	....	....	....	....	....	3	....	3	1	....	13
Unskilled Labor	....	....	10	9	5	12	151	164	73	22	3	1	43	38	11	29	7	6	3	9	3	82	28	7	5	721
Firemen and Engineers	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	—	....	....	1
Printing	....	....	....	1	1	3	12	20	8	1	....	....	7	9	....	....	2	2	....	2	2	3	2	14	1	90
Miscellaneous	....	....	....	....	....	....	1	2	....	....	....	....	1	2	....	1	1	....	....	1	2	1	1	....	2	15
Total	46	4	251	116	84	113	1089	1548	541	321	70	180	1452	1332	442	275	731	237	53	154	469	288	297	193	156	10442

TABLE III. AMERICAN GROUP NO. 1.

WOMEN / MEN	None	Unknown	Agriculture	Provisions	Clothing	Textiles	General Factory	Artisans	Drivers	Railroad and Street R. R.	Telephone and Telegraph	Finance	Retail Trade	Clerks	Clerical	Public Service	Professions	Semi-Professions	Personal Service	Domestic Service	Managers and Supts.	Unskilled Labor	Firemen and Engineers	Printing	Miscellaneous	Total
None	27	2	68	22	20	17	209	280	109	75	14	66	359	290	96	60	193	42	14	29	150	49	76	35	27	2329
Unknown	....	—	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0
Agriculture	....	....	—	....	....	....	....	....	....	....	....	....	1	1	....	....	....	....	....	....	....	....	1	....	....	3
Provisions	....	....	....	3	....	1	5	2	4	2	....	....	4	4	....	2	....	....	....	1	....	1	1	....	....	30
Clothing	1	....	5	6	10	2	53	85	16	12	4	3	50	60	21	16	14	8	1	3	13	9	13	15	6	426
Textiles	....	....	1	2	....	7	26	34	11	5	....	1	5	12	5	5	....	....	....	1	3	4	1	2	5	130
General Factory	1	....	4	4	2	6	58	69	24	8	3	1	28	20	11	16	2	2	....	6	1	8	8	8	4	294
Artisans	....	....	....	1	....	....	2	1	....	1	1	....	2	....	....	....	....	....	....	....	....	....	....	....	....	8
Drivers	....	....	....	....	....	....	....	....	—	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0
Railroad and Street Railway	....	....	....	....	....	....	....	....	....	—	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0
Telephone and Telegraph	....	....	2	....	3	1	7	16	8	3	2	....	14	13	7	3	2	1	....	....	....	1	3	1	....	87
Finance	....	....	....	....	....	....	....	....	....	....	....	—	....	....	....	....	....	....	....	....	....	....	....	....	....	0
Retail Trade	....	....	4	3	1	....	16	28	9	13	....	1	37	35	10	10	6	4	....	1	4	3	4	3	3	195
Clerks	....	....	3	1	....	1	21	45	8	4	....	4	57	80	28	8	16	2	1	5	11	....	6	5	6	312
Clerical	....	....	4	5	2	3	24	55	16	17	6	5	106	96	39	4	37	21	2	2	30	....	8	9	3	494
Public Service	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	—	....	....	....	....	....	....	....	....	....	1
Professions	....	....	12	....	1	1	9	17	2	3	....	8	33	26	17	4	66	10	4	1	18	2	11	1	2	248
Semi-Professions	1	....	4	....	1	1	7	13	3	6	1	....	13	7	7	4	18	6	1	2	8	1	4	....	2	110
Personal Service	....	....	....	....	....	....	1	4	....	....	1	....	2	2	....	2	4	2	1	....	1	....	....	....	....	20
Domestic Service	....	....	6	8	3	2	13	25	21	1	1	....	16	10	2	4	....	1	2	18	2	11	7	1	4	158
Managers and Superintendents	....	....	....	....	....	....	1	....	....	....	....	....	....	1	1	....	....	....	....	....	3	....	2	....	....	8
Unskilled Labor	....	....	3	6	2	2	81	84	35	11	2	1	31	23	5	18	4	3	1	6	....	40	10	5	2	375
Firemen and Engineers	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	—	....	....	0
Printing	....	....	....	1	1	....	7	11	1	1	....	....	2	7	....	....	2	2	....	1	2	....	1	9	....	48
Miscellaneous	....	....	....	....	....	....	1	1	....	....	....	....	1	2	....	1	1	....	....	....	2	3	....	....	1	13
Total	30	2	116	62	46	44	541	770	267	162	35	90	761	690	249	157	365	104	27	76	248	132	156	94	65	5289

men were employed in manufactures, it would be found that one half of the manufacturing women, one half of the professional women, one half of the women clerks, etc., would marry men in manufactures.

If a girl enters a profession, there is one probability in four that she will marry a professional man and small likelihood that she will marry into manufacturing. Ability to predict the occupation of the man whom a woman will marry may well be regarded as belonging in the realm of clairvoyance. Yet, while it will always be impossible to prophesy for an individual woman, for a group of women such prediction is not only easy but extremely accurate.

For this work it was necessary to secure a coefficient of propinquity-expectation. This is the ratio between the number of cases that would be predicted by the laws of chance and the number that actually occur.

The following illustration will exemplify the laws of chance. Place in a bag thirty-one balls and thirty-one cubes, each of which is either red, blue or green. Shake the bag and then draw at random the balls and cubes in pairs, one ball and one cube at each draw. If this process is repeated many times, it will be found that of the possible combinations of colors certain ones occur more frequently, depending upon the number of each color. If there are twice as many red balls and red blocks as of any other color, there will be four times as many chances of drawing a red pair as of drawing a pair of any other color.

If however, the red balls and cubes are placed in one part of the bag, the blue balls and cubes in another part of the bag, the green balls and cubes in a third part and the bag shaken very slightly, the chances of drawing two of a color are considerably increased. New tables can be constructed showing the effect of propinquity. The drawing is still made at random, by chance, and yet there is a decided increase of possibility that like will be paired with like.

Were marrying merely a matter of chance, the first illustration would explain the relation of occupation to marriage selection. The balls and cubes represent men and women respectively; the colors symbolize their occupations. The amount of intermarriage would be directly proportional to the numbers employed in each line of work. However, the second illustration typifies the actual influence of occupation. The position of the balls and cubes in the bag corresponds to occupational propinquity in life. Women in the home have no occupational propinquity and they marry entirely by chance as the blocks were drawn in the first illustration. The number of their husbands from any industry is in direct proportion to the number of men employed in that industry. This is shown in the tables. However, they are the only group of women thus subject to chance and the tables show that they are the only group of women who have married husbands in these proportions. One tenth of the total number of men are employed in general factory work. Yet in some cases more, in others less, than one tenth of the women in an occupation marry men in general factory work, the proportions varying according to the particular occupation of the wives.

Questions of method arise, first of determining the expectation of marriage between people of various occupations and second of comparing this expectation with the empirical data. A small table will serve as an illustration. Suppose that there are three possible occupations and that men and women are distributed among these occupations. The table should be read across for women and down the columns for men.

EMPIRICAL TABLE.

	A	B	C	Totals
A............	5	8	7	20
B............	3	3	1	7
C............	1	1	2	4
Totals	9	12	10	31

There are 9 men and 20 women in the first occupation, 12 men and 7 women in the second and 10 men and 4 women in the third. This would give a total of 31 men and 31 women. A marriage would be possible between any of these men and each of these women; that is, there would be 31 possible marriages for each woman and for each man. Since there are 20 women and 9 men in Group A, there are 9 times 20 or 180 possible combinations between the men and women in Group A. Likewise, the number of possible combinations between the men in Group A and the women in Group B is 9 times 7 or 63 and between men in Group B and women in Group C it is 48. If a table of possible combinations is made, it will be as follows:

	A	B	C	Totals
A.	**180**	240	200	620
B.	63	**84**	70	217
C.	36	48	**40**	124
Totals.	279	372	310	961

There are 961 possible combinations but only 31 marriages are possible. Therefore, if each number of the above table is divided by 31, a table will be formed which will give what could be expected to occur were marriage merely a matter of chance. This Expectation Table will show the distribution of the 31 marriages among the people in the three occupation groups. The distribution of marriages represented in this table corresponds to the distribution of colors when the balls were drawn at random.

EXPECTATION TABLE.

	A	B	C	Totals
A.	**5.8**	7.7	6.4	20
B.	2.0	**2.7**	2.3	7
C.	1.2	1.5	**1.3**	4
Totals.	9	12	10	31

A comparison of the Empirical Table with the Table of Expectation shows where actuality exceeds the expectation and where it is less than expectation. The diagonal contains all cases of like marrying like and indicates that Group A married Group A less than would have been predicted by chance while in the other two cases the reality slightly exceeded expectation.

Dividing each number in the Empirical Table by the corresponding number in the Table of Expectation gives a third

None.
Unkn
Agric
Provi
Cloth
Texti
Gener
Artisa
Drive
R. R.
Telep
Finan
Retail
Clerk
Cleric
Public
Profe
Semi-
Perso
Dome
Mgrs.
Unski
Firem
Printi
Misce

table, of which each number is the ratio between the actuality and the expectation. This may be called the coefficient of expectation or in this case the coefficient of propinquity expectation.

COEFFICIENT TABLE.

	A	B	C
A	**.86**	1.04	1.09
B	1.50	**1.11**	.43
C	.83	.67	**1.54**

The diagonal further indicates that in the first group the number of cases where like married like is less than the expectation. In the second and the third group the index of measurement is more than unity. Where the index exceeds unity, the reality is greater than the expectation. Where the index is less than unity, expectation is greater than reality. The total chances of like marrying like may be determined by dividing the sum of the diagonal of the Empirical Table by the sum of the diagonal of the Expectation Table. In this case like marries like slightly more than the expected number of times.

By the method illustrated the following table of expectation, Table IV, was computed for the American Group. A comparison of this table with Table II shows that each number in the diagonal of the Empirical Table exceeds the corresponding number in the diagonal of the Table of Expectation; that is, like marries like beyond expectation. If marriage were purely a matter of chance as far as occupation is concerned, Table II and Table IV would be very nearly identical. However, there are but few places where they approach identity.

Table V is a detailed comparison in the American Group of the empirical table of marriage, Table II, with the expectation table of pure chance, Table IV. Each number in this table is a coefficient of expectation, that is, it is the ratio between the number of times a marriage occurred and the number of times that it might have been predicted by chance. Numbers greater than unity represent more intensive intermarriage and numbers less than unity represent combinations that occur less frequently than expectation. This table is the main center of interest in the statistical presentation of the material. The

TABLE V. TABLE OF COEFFICIENTS FOR AMERICAN GROUP.

	None	Unknown	Agriculture	Provisions	Clothing	Textiles	General Factory	Artisans	Drivers	Railroad and Street Railway	Telephone and Telegraph	Finance	Retail Trade	Clerks	Clerical	Public Service	Professions	Semi-Professions	Personal Service	Domestic Service	Managers and Superintendents	Unskilled Labor	Firemen and Engineers	Printing	Miscellaneous
None	**1.94**	1.68	1.32	.943	.824	.751	.830	.802	.854	.987	.797	1.65	1.12	.977	.980	.998	1.27	.866	1.31	.870	1.31	.891	1.02	.833	1.04
Unknown	....	—	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Agriculture	....	....	—	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Provisions	....	....	....	**8.33**	....	5.14	1.60	.749	1.79	1.81	....	....	.666	.726	.437	2.82	....	....	....	....	.412	1.34	1.30	....	....
Clothing	....	....	.670	1.00	**2.47**	.687	1.34	1.47	.909	1.09	1.29	.288	.847	1.11	1.02	.235	.389	.873	1.22	.504	.607	.674	.959	1.54	1.33
Textiles	....	....	.155	1.00	.463	**9.28**	1.85	1.65	1.51	.967	1.11	1.29	.134	.670	.527	1.41	.159	.327	.730	1.01	.414	1.08	.261	1.01	1.99
General Factory	....	....	.480	.890	1.64	1.52	**2.00**	1.56	1.88	.857	.983	.191	.557	.646	.623	1.38	.141	.435	....	.894	.073	1.14	.927	2.14	1.32
Artisans	....	....	....	....	....	....	....	—	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Drivers	....	....	....	....	....	....	....	....	—	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
R. R. and St. R. R.	....	....	....	....	....	....	....	....	....	—	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Telephone and Telegraph	....	....	....	....	....	....	.588	.952	1.30	1.40	**4.59**	....	1.06	1.44	1.74	1.63	.438	.270	....	.416	.546	.444	1.51	2.32	....
Finance	....	....	....	....	....	....	....	....	....	....	....	—	....	....	....	....	....	....	....	....	....	....	....	....	....
Retail Trade	....	....	1.29	1.16	1.60	.238	.890	1.13	.796	1.68	1.15	.811	**1.22**	1.29	1.04	1.37	.442	1.36	.508	1.22	.402	.467	.544	1.12	1.03
Clerks	....	....	.754	.593	.205	.457	.585	.978	.604	.643	.737	.669	1.29	**1.85**	1.52	1.13	.683	.871	.325	.559	1.28	.179	.637	.802	.882
Clerical	....	....	.428	1.11	.766	.285	.601	.860	.575	1.07	1.53	.775	1.44	1.39	**1.75**	.429	1.06	1.49	.607	.697	1.40	.075	.651	.834	.481
Public Service	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	—	....	....	....	....	....	....	....	....	....
Professions	....	....	1.56	.376	.519	.579	.540	.535	.161	.679	.935	1.45	1.07	.851	1.23	9.52	**3.46**	2.48	1.65	.283	1.02	.151	1.62	.226	.698
Semi-Professions	....	....	1.89	....	.565	.420	.741	.705	.526	1.18	.680	.528	.686	.748	1.07	.864	2.21	**3.81**	.893	1.23	1.62	.165	.958	1.23	2.13
Personal Service	....	....	....	....	....	....	.563	.992	....	....	....	....	1.27	.922	....	2.23	2.52	3.89	**5.78**	....	1.96	....	....	....	....
Domestic Service	....	....	1.10	2.69	1.65	.612	.825	1.07	2.75	1.19	.988	....	.572	.467	.156	1.38	.047	.730	1.31	**7.19**	.369	3.36	1.63	.179	1.11
Mgrs. and Supts.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	**5.14**	....	8.11	....	....
Unskilled Labor	....	....	.577	1.12	.862	1.54	2.01	1.53	1.95	.993	.621	.080	.429	.413	.360	1.53	.139	.367	.820	.847	.093	**4.12**	1.37	5.25	.464
Firemen and Engineers	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	66.67	....	....	—	....	....
Printing	....	....	....	....	....	3.08	1.28	1.50	1.72	.361	....	....	.560	.784	....	....	.317	.979	....	1.50	.495	1.21	.781	**8.43**	.746
Miscellaneous	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	—

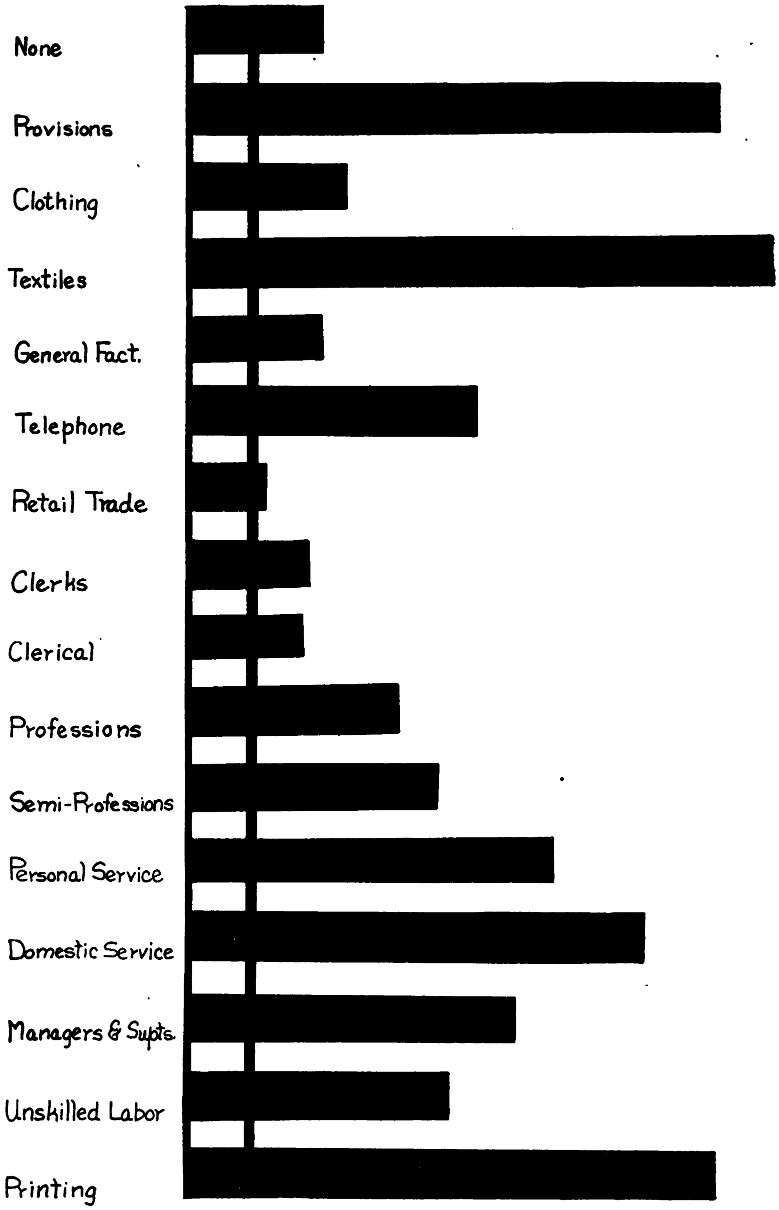
diagonal represents the coefficients of marriage within each occupation. Each number in the diagonal exceeds unity and for most of the occupations the ratio is greater than two. Because of the interest and importance of marriage within the occupation, a graph of this diagonal was made.

This graph represents the ratios of like occupations marrying like. The solid black line represents unity of expectation. The columns represent the ratio of the actuality to this unit of expectation. In all cases where there were sufficient numbers to permit of statistical treatment, the reality exceeds the expectation. In all but the least skilled and most undifferentiated occupations there is at least twice the expectation and many times this is far exceeded.

When the numbers in the diagonal are added, the sum gives the number of cases of like occupations marrying like. When the sum of the diagonal of the Empirical Table is divided by that of the Table of Expectation the quotient is 2.79. For the mixed group it is 2.50 and for the foreign group it falls to 2.00. These are the actual coefficients of propinquity expectation for large groups in Philadelphia and it is very probable that these figures are approximated in most of the industrial cities where similar conditions exist. This means that among Americans of American parentage, 2.79 times as many marriages are occurring within the occupations as would take place were marriage merely a matter of chance. For the mixed group it is 2.5 times as many and for the foreign group twice as many.

The statement has been made that throughout the American Group the coefficient of expectation for like occupation marrying like is 2.75. A comparison with the results of a research made in connection with this throws an interesting light on this coefficient. Using the same cards as the source of material, a study was made of the intermarriage among nationalities. Tables of expectation and of coefficients were made The coefficients for intermarriage of natives of native parentage was found to be 1.8 while that of intra-occupational marriage is 2.75. Irrespective of the occupation, the rate of marriage within it is greater than between sons and daughters of American parents. There is twice as much marriage between

GRAPH.—SHOWING RATIO OF LIKE MARRYING LIKE.



employees of textile mills as between the children of German-born parents. The important deduction is not that there is so little intermarriage within lines of nationality but that there is so much intermarriage within occupations.

Any ambiguity of results given so far is probably due to their applying to intermarriage of groups of people rather than to those within a particular occupation. The fact that there are hundreds of subdivisions of occupation in the textile mills, in the boot and shoe industry, etc., made statistical treatment of particular occupations impossible. Another study was made in order to determine to how great an extent propinquity is a matter of the particular occupation.

A supplementary investigation was made of statistics of Bryn Mawr alumnae. It was found that about 90 per cent. of the married alumnae had married college graduates. More than 60 per cent. of them married men in professions. Out of ten doctors who graduated from Bryn Mawr and later married, seven married doctors. There was a great deal of intermarriage within such groups as school teachers, social workers, doctors and musicians. These figures were obtained through the courtesy of Dean Isabelle Madison from a list of the occupations of over five hundred alumnae and their husbands. This list contained all cases that could be collected.

The statistical results did not differ greatly from those given in this paper. Yet here was a group of women who had been trained along highly specialized lines. Here, if anywhere, would be a chance to work out results significant for their individual and human meaning rather than the statistical. The grouping of occupations in this paper was owing to the necessity for groups large enough to give the results a statistical meaning. The Bryn Mawr study gave an opportunity for interesting individual treatment. Cases of teachers, doctors and others easily classified gave results similar to those obtained in the large groups already discussed, except that there was a greater degree of intra-occupational marriage. Thirty cases of odd or unusual occupations difficult to classify remained.

Of these thirty marriages there were sixteen in which there was no similarity of occupation but the other fourteen married as follows:

Women.	*Men.*
Explorer	Explorer
Lawyer	Lawyer
Farmer	Farmer
Manager of Photo Plays	Manager of Photo Plays
Art Student	Landscape Engineer
Editor	Editor
College Secretary	College Secretary
Newspaper Writer	Reporter
Law-office Secretary	Law Student
Assistant Superintendent of Children's Bureau	Secretary of Children's Bureau
Settlement Worker	M. D. Settlement Worker
Student of Sociology	Student of Sociology
Student of Architecture	Civil Engineer
Student of Biology	Professor of Biology

These cases give strong evidence of the influence of occupational propinquity since it would be impossible for all these unusual marriages to occur merely as a matter of chance.

Suitable statistical evidence as to the sufficiency of the data comes from two mathematical comparisons. The first of these consists of a comparison of the number of individuals in each of the occupations of this complete group with the total number in each occupation in Philadelphia. This is found to be nearly a simple proportion throughout.

The second source of evidence is even more convincing because it concerns only those of marriageable age in Philadelphia. It is a refined grouping. Both of the American groups were selected at random in a statistical manner—by pure chance. Thus, each is a statistically typical group. Yet the number in each occupation in one group correlated with the corresponding number in the other group gave a coefficient of correlation of .9 plus. It is upon such evidence as this that the ratio of the number of men in a particular occupation to the total number of men in the group is considered as a fair index of the theoretical possibility of marriage in each occupation.

The proof as to the constant distribution of data consists of two parts. In the first place, great emphasis has been laid upon the amount of intermarriage within the occupation. This is represented by black-faced diagonals in the tables. The Pearson coefficient of correlation of the diagonals in the two American groups is .97. This indicates that at the time shown there was a constant effect of propinquity throughout the American Group. This high correlation held in the other tables. The second point of interest was whether or not the tables were sufficient to show the general distribution of marriage so that it was fair to predict the chance of marriage on this basis. This would be shown by the correlation, number by number of the two American groups. It is impossible to determine by inspection. However, the Pearson coefficient of correlation for each number of one table correlated with the corresponding number of the other table was worked out and found to be .9 plus.

Study of occupational propinquity upon marriage selection leads to the conclusion that a girl's choice of her vocation has a directing influence in deciding from which occupation she will marry her husband. Tables giving the proportion of fathers and sons and of fathers and daughters in the same occupation were made. They give new results. Computation of the coefficients of expectation shows that the chances are even for a man to marry into his own occupation and for his son to enter the same occupation. The close relationship between the occupations of father and son has long been a well-established fact but woman in industry is so recent a phenomenon that there has been no realization of the close occupational relationship of husband and wife. These tables with other similar data will make possible a new type of statistics. With almost as much certainty as is offered by the Mendelian Law it will be possible to predict what the chances are for a girl entering a particular occupation to have her children enter the same occupation. These results studied with reference to nationality will demonstrate the process of climbing the ladder of industries supposed to be typical of the development of a race. In order to obtain such specific deductions, it is necessary to deal with large numbers but as the movement already involves one half of the marrying women in the industrial cities of the country, it is large enough to merit consideration.

In modern industry where the large numbers of women and the selection of abilities by different occupations exist, *specialization of ability through heredity, environment, and training is favored by the propinquity of like types of men and women in industry.* To whatever extent an industry requires specialized ability, it may be bred by the matings within the industry. As the conditions of an occupation change, a new type of ability will be required and the breeding will mechanically change to the new type. No psychological examination to determine the complex required by the industry is needed for this breeding—survival within the industry is the test. The three biological essentials are present, heredity, training, and environment. Where men and women are employed together in like positions, each profession or specialized occupation is the natural breeding place for people of the type of ability required. This situation must be recognized both by those who believe in heredity and by those who favor environment. Sex propinquity in modern industry seems destined to affect the matings and through the matings the type of the coming generations.

DEC 13 1919